

15¢

\$5.50 A YEAR

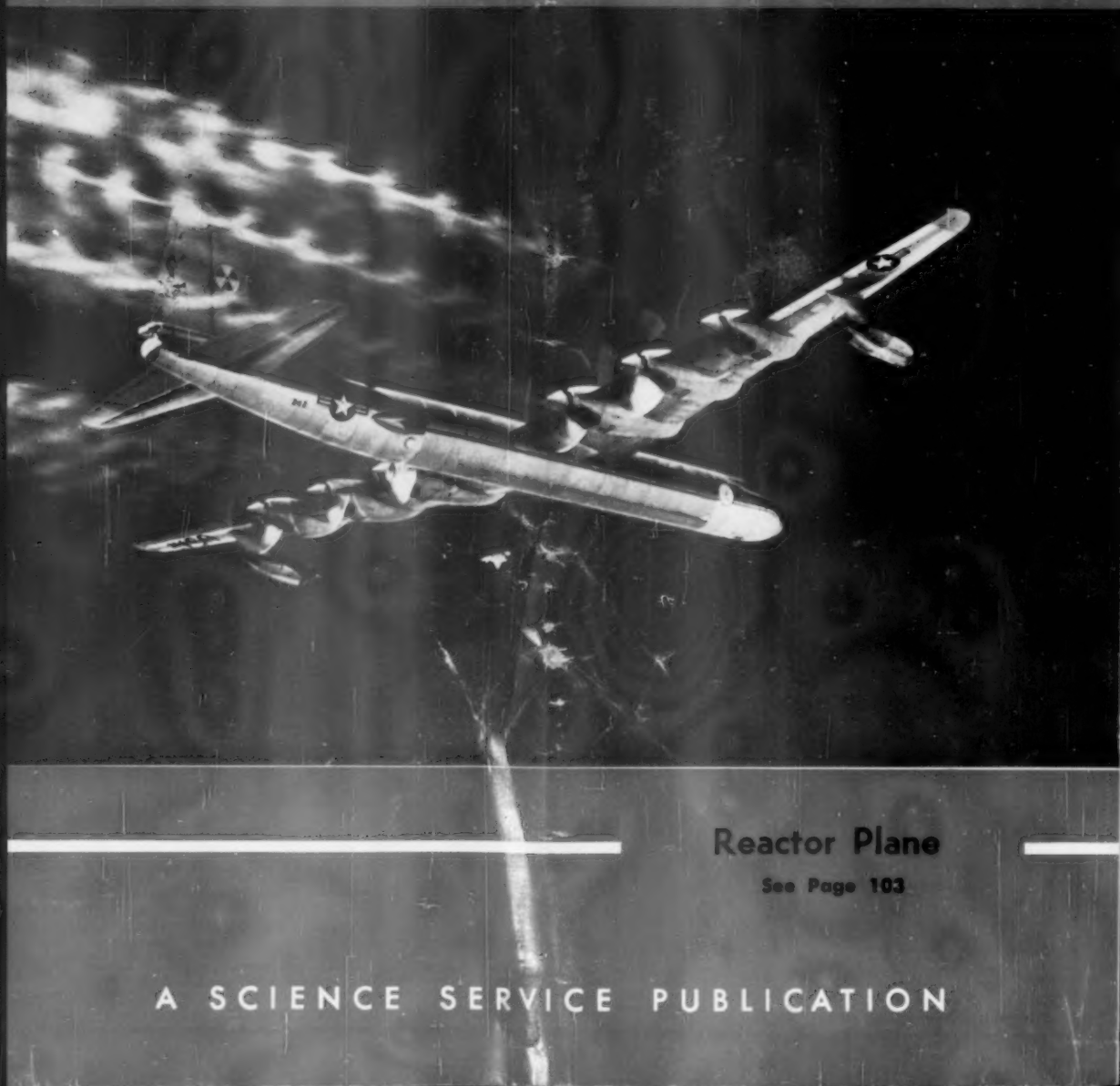
August 18, 1956

VOL. 70, NO. 7

PAGES 97-112

# SCIENCE NEWS LETTER

THE WEEKLY SUMMARY OF CURRENT SCIENCE



**Reactor Plane**

See Page 103

A SCIENCE SERVICE PUBLICATION

# NOT TILL 1971

will MARS be again so close for you to view!

## See MARS Sept. 6th

Observe the Red Planet with this 50mm Telescope! It has been many years since Mars has been so close and it won't be so favorable to view for another 15 years. Take advantage of this opportunity. Mars can be seen clearly for only a few months preceding and afterwards. Order this Telescope now to practice for best results on September 6. 50mm Telescope comes complete with movable tripod magnification 50x. Already assembled. 15 lbs.



Complete  
**\$39.95**  
F.O.B., N. Y.

## 60mm Telescope

Extraordinarily fine refracting instrument. Precise controls. Image is erect—not upside down. No wavering. Azimuth clamp. A valuable addition to any laboratory, school or scientific household. 3 Eyepieces—89x, 64x, 40x, Sun Glass and Tripod. 20 lbs.



Complete  
**\$99.95**  
F.O.B., N. Y.

## 40mm Telescope

A clear, accurate stable telescope for planets, stars or ground observation. Complete with Tripod and Case. 20 lbs.



Complete **\$19.95** F.O.B., N. Y.

## WRIST RADIO



Weight: 2.5 Oz.

A broadcast band all-transistor radio has been designed with RF reflex circuit to provide good selectivity and sensitivity. In moderate signal strength areas, no antenna is required up to a distance of 25 miles from a broadcast station of average power. Good reception can be obtained over 35 miles with the use of a wire from 6 inches to 3 feet. The use of transistors makes it a rugged device not subjected to tube breakage. Rugged high quality components are used throughout. Normally the transistor will not have to be replaced for the life of the instrument. Extreme economy of operation is obtained through the use of special circuitry requiring very low current, thus prolonging the life of the mercury cells. The small size makes it the ideal radio. It can be worn on the wrist where it easily fits under the sleeve of a jacket or worn in a shirt pocket.

Complete  
**\$29.95**

Oliver Garfield Co., Dept. 51-43

126 Lexington Ave., New York 16, N.Y.

Please send me: ☐ 60 mm Telescope \$89.95  
F.O.B., N. Y. ☐ 50 mm Telescope \$39.95  
☐ 40 mm Telescope \$19.95

☐ Wrist Radio \$29.95, Postpaid  
GENIAC Construction Kit & Manuals  
\$19.95 East of the Mississippi  
☐ \$20.95 Elsewhere in U. S.  
☐ \$21.95 Outside U. S.

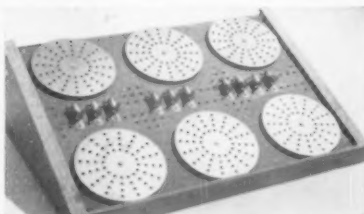
My name and address are attached.

## GENIAC® ELECTRIC BRAIN

COMPUTES, PLAYS GAMES, "REASONS", COMPOSES MUSIC

BUILD IT YOURSELF in a few hours!

Here's a wonderful kit that gives you a fascinating introduction to the logic machines of our modern age! The devices you can build test intelligence, code and decode, count, play Tic-tac-toe, solve problems! Converts from binary to decimal—reasons in syllogisms—computes!



### APPLICATIONS OF GENIAC

SIMPLE COMPUTER CIRCUITS for binary decimal adding, subtracting, dividing, multiplying machines. PROBLEMS in symbolic logic, reasoning, comparing. INTELLIGENCE TESTING and EXPERIMENT. GAME PLAYING CIRCUITS for tic-tac-toe and nim. ACTUARIAL ANALYSIS. NEW! COMPOSE MUSIC—work out your own tunes automatically!

### WHAT COMES WITH THE KIT?

1—SIMPLE ELECTRIC BRAINS, AND HOW TO MAKE THEM . . . 64 page experimental manual. 2—MINDS AND MACHINES . . . 200 page text on computers, automation and cybernetics. 3—WIRING

### WHO ARE OUR CUSTOMERS?

Remington Rand • International Business Machines  
Barnard College • Westinghouse Electric • Albert  
Einstein Medical College • Naval Research Laboratories • Kansas State University • Duke University • Bell Telephone Laboratories • Hundreds of Junior and Senior High Schools

DIAGRAMS for basic GENIAC circuits. 4—BEGINNERS MANUAL. 5—GENIAC study guide . . . the equivalent of a full course in computer fundamentals, lists additional readings. 6—Over 400 parts and components with plastic "PARTS TRAY". Returnable in seven days for full refund if not satisfied.

## ASTRONOMY

# Unknown Twin Universe

To explain the balanced nature of the universe as well as observations from earth of predominantly positively charged matter, physicist postulates an "anti-cosmos."

► THE LATEST SPECULATION is that there is a gigantic unseen "twin" or duplicate to the immense universe around us.

This anti-cosmos is postulated in *Science* (Aug. 3) by Dr. M. Goldhaber, physicist at the Atomic Energy Commission's Brookhaven National Laboratory, Upton, N. Y.

Suggested by the recent discovery of the anti-proton, or the fundamental unit of matter in reverse, this new theory is an extension of our cosmology far beyond the reach of the biggest telescope.

What we now know as the universe resulted from the splitting of a gigantic particle, the "universon," about four and a half billion years ago. Before that, the universon held both the cosmos and its twin, the anti-cosmos.

The gigantic particle's break-up into two parts is needed to explain the balanced nature of the universe and the unbalanced part we can see.

Here on earth, in all the solar system and in all space visible from this planet, atomic cores are almost without exception positively charged. Anti-matter is rare. In the yet unseen twin, matter would be predominantly negatively charged. The kind of matter we know from here would be the exception.

In the opposite universe, there would be planets, stars and galaxies, just as there are here. They would not necessarily be exact mirror images of the solar system and Milky Way galaxy of which the earth is a part, but statistically the anti-universe would resemble this universe.

The argument that the reverse universe exists is based on earthly observations that nature is symmetrical. For every charged particle there is thought to exist a negatively charged counterpart.

Before splitting some four and a half billion years ago, the universon contained the mass and charge of both the presently known universe and its opposite number.

For many years, scientists have realized that the tiny particles of which matter is made have anti-particles, twins in all respects except for their charge. In laboratory and cosmic ray experiments they can catch brief, tantalizing glimpses of this other world. These studies show the symmetry, or balance, of nature.

Previous theories of the beginning of today's known universe, however, are based on a non-symmetrical beginning, one in which there were no anti-particles, but only the kind of matter now observed.

To explain the peculiar unbalance of particles seen from the earth, but still preserve symmetry in the beginning, Dr. Goldhaber suggests that more than four and a

half billion years ago, the "universon" split in two. The positively and negatively charged universes resulting then started racing away from each other at an extremely high rate of speed. The process would be similar to the spontaneous break-up of a neutral meson into two charged mesons of opposite sign.

This, he says, is the "logical structure" of a theory of the origin of the universe that keeps a balance between particles and anti-particles.

Could this separation have been so complete, Dr. Goldhaber questions, that scientists here could not detect "occasional collisions" of galaxies and anti-galaxies, with "spectacular results?"

If matter is being continuously created in the form of elementary hydrogen atoms in space, he questions whether there should not be "considerable" background radio noise from the voids in which hydrogen atoms meet anti-hydrogen atoms.

Dr. Goldhaber's theory of a once-symmetrical universe now broken in half raises many questions, among which are the following:

1. Can the direction in space defined by

the imaginary line joining the cosmos with the anti-cosmos be detected?

2. Is the anti-cosmos itself detectable and, if so, how far away is it and is it still flying away from this universe?

3. If there was once only a single "universon," what existed before that, and is there any point in asking such a question, even theoretically?

4. Is it reasonable to assume the existence of particles of such very large charge as the universon, and would they break up in the manner suggested?

Dr. Goldhaber points out that, although his ideas fit well into a universe based on Newtonian ideas, they may not fit well into a universe based on Einstein's ideas.

*Science News Letter, August 18, 1956*

## ENGINEERING

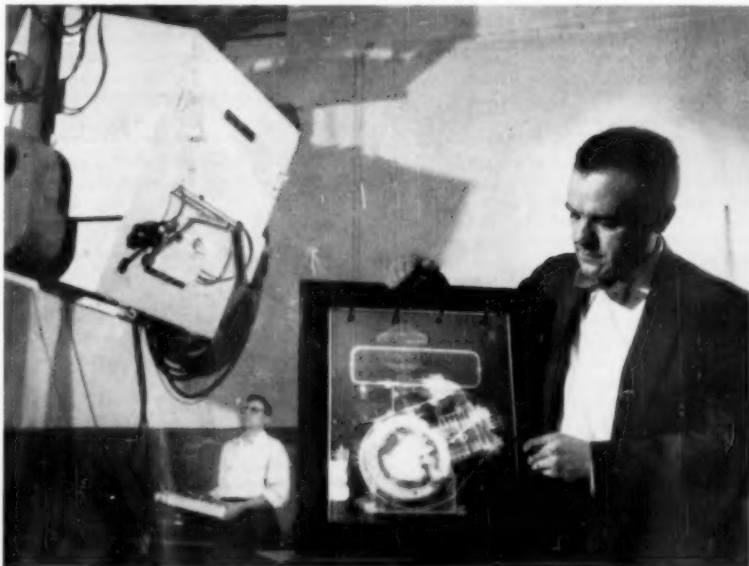
## Take Pictures of Engine in Action

► PICTURES of the insides of engines in action are being taken by engineers at Detroit Arsenal.

The new technique, called stroboscopy, allows scientists to examine complete cycles of engine operation for faulty performance or wear. It was developed by the General Electric Company in cooperation with Detroit Arsenal.

The method involves taking thousands of very short X-ray exposures accurately timed with the moving part, superimposing the brief pictures on special film. The engine thus appears to be standing still, although it is operating at normal speed.

*Science News Letter, August 18, 1956*



**RUNNING ENGINE X-RAYED**—The inner secrets of a running engine are shown in this photograph of the equipment and resulting X-ray taken at the Detroit Arsenal. The multiple exposure, timed to coincide with the engine's pulses, was made of a two-horsepower, four-cycle gasoline engine.

## GENERAL SCIENCE

# Scientific Manpower

**National Science Foundation study comparing numbers of scientists and engineers in the United States with those in Russia shows U. S. now has more than U. S. S. R.**

► THE UNITED STATES has more scientists than does the Soviet Union. The gap in numbers is rapidly closing, however, and last year alone the Russians graduated twice the number of science students this country did.

These facts were made public in a report comparing figures of U. S. and Russian scientific personnel prepared by the National Science Foundation.

In its report, the Foundation cautions throughout that comparisons are very hard to make and, if made, they might not stand up because of basic differences in the educational and statistical methods of the two nations.

The report shows that in 1955:

1. There were 1,536,000 graduates in all scientific fields in the United States and 1,158,000 in Russia.

2. Of these, the U. S. had 575,000 engineers and Russia had 535,000 engineers, excluding 51,000 others classified as engineers by the Soviet Union.

3. Science field graduates in the U. S. totaled 59,000, including 22,589 engineers. Russia graduated 126,000 scientists, including 59,000 engineers.

4. The U. S. had 1,360,000 teachers at all levels, and Russia had 1,900,000 at all levels. Of these, the U. S. had 130,000 to 140,000 science and mathematics teachers in high schools and the Russians had 350,000 science and mathematics teachers in secondary schools.

5. The United States had 114,600 Ph.D.'s in all fields and the Russians had 80,000 to 85,500 "Candidates," which is roughly equivalent to our Ph.D. degree.

6. More than 2,721,000 students were enrolled in institutions of higher education in this country as compared to 1,865,000 in the Soviet Union.

"The people represented by the data under discussion," Dr. Alan T. Waterman, director of the Foundation, said, "live in vastly different social, political and economic frameworks. The figures themselves are drawn from different demographic bases. These differences result, not only in different kinds of training in the two countries and in subsequent utilization of trained personnel, but they also result in intangible individual differences that do not lend themselves to comparisons."

Psychologists, for example, are included in the U. S. figures for scientific personnel, but not in the Russian figures. The U. S., it is explained, has many psychologists, whereas the U.S.S.R. has few.

In the U. S. also, the report stresses, graduates in science might not work in their scientific fields. In Russia, however, the

scientist is almost certain to be found employed in his area of study.

The figures for the report were compiled by the Foundation with the help of Nicholas DeWitt of the Russian Research Center at Harvard University.

Science News Letter, August 18, 1956

## TECHNOLOGY

## Paper-Covered Wood Found to Be Valuable

► LOW-GRADE WOOD covered with resin-impregnated paper can be used for siding, house trim, cabinet partitions and many other uses, tests at the U. S. Forest Products Laboratory, Madison, Wis., show.

The paper cover makes it possible to use cheaper lumber, both by protecting the lumber and by masking defects such as knots, pitch pockets and splits. In addition, tests have shown that the paper glued to pine reduces the lateral swelling 25% to 40%.

When glued to oak, one layer of paper reduced swelling 20%; two layers reduced swelling 35%. The paper also makes it easy to paint coarse and defective boards.

Drawbacks in the use of paper-covered lumber are the possibility that nails might be driven in through a weak spot, and the fact that the lumber cannot be resawed or planed. Because of these factors, its use is expected to be only for finished products.

Science News Letter, August 18, 1956

## AERONAUTICS

## British Rockets to Fly at 3,500 MPH

► ROCKETS traveling at 3,500 miles per hour will be fired more than 100 miles into the upper atmosphere from Woomera rocket range next year as part of the joint British-Australian contribution to the International Geophysical Year, which starts July 1, 1957.

The maximum rocket speed will be obtained 30 seconds after launching. By then, the rockets will have reached an altitude of 150,000 feet.

British and Australian scientists are now working out details of the firings in co-operation with the United Kingdom and Australian Supply Departments.

The rockets will contain instruments to record information about the upper atmosphere and cameras to photograph the sun. Information will be recorded about the electrical conditions in the ionosphere, cosmic radiation and temperatures both inside and outside the rockets.

The rockets are being built at the Royal Aircraft Establishment at Farnborough, England, and will carry about 150 pounds of instruments.

The instruments will be placed in the noses of the rockets and will be detached at a predetermined height by an explosive charge. They will be brought down to the ground by parachutes.

Power for the rockets will be provided by motors burning solid fuel, which will be of an experimental type designed for use in the guided missile tests.

Science News Letter, August 18, 1956

## SCIENCE NEWS LETTER

VOL. 70

AUGUST 18, 1956

NO. 7

The Weekly Summary of Current Science, published every Saturday by SCIENCE SERVICE, Inc., 1719 N. St., N.W., Washington, D. C. North 7-2255. Edited by WATSON DAVIS.

Subscription rates: 1 yr., \$5.50; 2 yrs., \$10.00; 3 yrs., \$14.50; single copy, 15 cents, more than six months old, 25 cents. No charge for foreign postage.

Change of address: Three weeks notice is required. When ordering a change please state exactly how magazine is now addressed. Your new address should include postal zone number if you have one.

Copyright, 1956, by Science Service, Inc. Reproduction of any portion of SCIENCE NEWS LETTER is strictly prohibited. Newspapers, magazines and other publications are invited to avail themselves of the numerous syndicated services issued by Science Service. Science Service also publishes CHEMISTRY (monthly) and THINGS of Science (monthly).

Printed in U. S. A. Entered as second class matter at the post office at Washington, D. C., under the act of March 3, 1879. Acceptance for mailing at the special rate of postage provided for by Sec. 3440, P. L. and R., 1948 Edition, paragraph (d) (act of February 28, 1925; 39 U. S. Code 263) authorized February 28, 1950. Established in mimeographed form March 13, 1922. Title registered at Trademark, U. S. and Canadian Patent Offices. Indexed in Reader's Guide to Periodical Literature, Abridged Guide, and the Engineering Index.

Member Audit Bureau of Circulation Advertising Representatives: Howland and Howland, Inc., 1 E. 54th St., New York 22, Eldorado 5-5666, and 435 N. Michigan Ave., Chicago 11, Superior 7-6048.

## SCIENCE SERVICE

The Institution for the Popularization of Science organized 1921 as a non-profit corporation.

Board of Trustees—Nominated by the American Association for the Advancement of Science: Paul B. Sears, Yale University; Karl Lark-Horowitz, Purdue University; William W. Rubey, U. S. Geological Survey. Nominated by the National Academy of Sciences: Harlow Shapley, Harvard College Observatory; George W. Corner, Rockefeller Institute for Medical Research; Edward U. Condon, Berkeley, Calif.; Nominated by the National Research Council: Leonard Carmichael, Smithsonian Institution; Jerome Hunsaker, Massachusetts Institute of Technology; I. I. Rabi, Columbia University. Nominated by the Journalistic Profession: Michael A. Gorman, Flint Journal; Neil H. Swanson, Ruxton, Md.; O. W. Riegall, Washington and Lee University. Nominated by the Scripps Estate: John T. O'Rourke, Washington Daily News; Charles E. Scripps, Cincinnati, Ohio; Edward J. Mesman, Memphis Press-Scimitar.

Officers—President: Leonard Carmichael; Vice President and Chairman of Executive Committee: Charles E. Scripps; Treasurer: O. W. Riegall; Secretary: Watson Davis.

Staff—Director: Watson Davis. Writers: Jens Stafford, Marjorie Van de Water, Anna Ewing, Howard Simons, Dorothy Schriver, Helen M. Davis. Science Clubs of America: Joseph H. Kraus, Margaret E. Patterson. Photography: Fremont Davis. Production: Priscilla Howe, Marcia Nelson. Interlingua Division in New York: Alexander Gode, 80 E. 11th St., Glenside 9-5410.

## METEOROLOGY

# Spot Tornado by Scream

Doppler radar proposed as method of making tornadoes issue their own warnings. Simplified model now being used to test whether principle will work.

► THE VICIOUS WHIRLING TORNADO will warn of its approach with a scream on a loudspeaker next year if plans of the U. S. Weather Bureau are successful.

The same technique, known as Doppler radar, might also be used to warn airplanes that another aircraft was heading for them. Present-day radars operate by sending out radar waves that bounce back from the target. The range and angular position pinpoint the target.

In Doppler radar, the targets, whether tornadoes, high-speed airplanes or turbulent air, are spotted by their relative speeds. Output of such a radar is in the audible range.

The Defense Department is believed to be working on Doppler radar for many secret applications. The Doppler effect is familiar in the apparent rising note of a train whistle as the train approaches, its lowering as the train recedes in the distance.

Scientists hope the twister's swirling funnel can be spotted by an especially built radar, a simplified model of which is now undergoing its first tests at Cornell Aeronautical Laboratory, Buffalo, N. Y. This Doppler radar, if it works, would probably be used as an auxiliary for existing radar sets now being operated routinely to locate tornadoes and other severe weather. (See SNL, Aug. 11, p. 86, and SNL, March 12, 1955, p. 170.)

It is possible, however, that the new radar sets now on order for the U. S. Weather Bureau could be adapted to use the Doppler effect through addition of electronic circuitry.

One aim is to try to discover the tornado before its swooping funnel, so lethal where it sweeps the ground, is formed. Its high winds, thought to whirl at speeds up to 300 miles per hour, would contrast with those of the surrounding air to produce the audible sound on Doppler radar. Moisture carried by the winds would reflect the radar waves.

After the tornado's funnel was formed, the dust and other material inside it would also reflect radar waves, it is expected. Scientists do not know for sure because no one has heard a twister on Doppler radar.

There would be no danger of confusing a tornado with airplanes. Dr. James Brantley of the Cornell laboratory told SCIENCE SERVICE. He said he hoped the new equipment would give a tornado's bearing within one degree, as well as its speed and direction of movement over the earth.

The two 30-inch antennas Dr. Brantley is using to test the theory, with an output of five watts, have scanned clouds and, when conditions are good, have shown tur-

bulent motion within the clouds. If the small radar sets work, then their design will be improved for an operational instrument that would be tested in the field.

Advance knowledge of the occurrence and probable path of tornadoes would save not only millions of dollars of property damage but also many lives.

Science News Letter, August 18, 1956

## WILDLIFE

## Freeways Provide Wildlife Reprieve

► FREEWAYS, in some instances, may provide a temporary reprieve for wildlife against encroaching civilization, reports Dr. Malcolm E. McDonald of Union College, Schenectady, N. Y., a visiting zoologist at the University of California at Los Angeles.

The Sandy Barrens, a unique wasteland of sand, scrub pine and bogs, created in glacial times and lying between Schenectady and Albany, N. Y., a short time ago teemed in wild life, ranging from deer to rare birds. Rare ferns also were found.

For some time, however, housing tracts from the two cities have been making considerable inroads on the primitive area. Wildlife is gradually disappearing in the wake of civilization.

The recently-completed New York Thruway passes through the heart of the Sandy Barrens parallel to and about two miles from New York Central track. Thus the Thruway with its limited access is a temporary barrier to extension of housing areas, particularly in the area between it and the railroad.

Science News Letter, August 18, 1956

## SEROLOGY

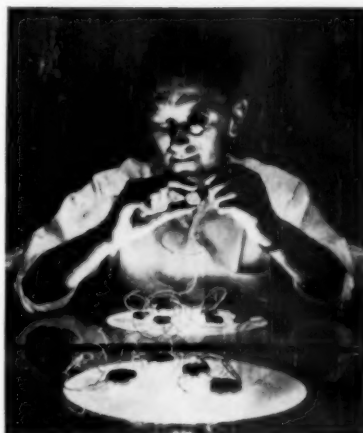
## Use Fruit Flies to Assay Spider Antivenin

► FRUIT FLIES might be used instead of mice for assay of antivenins against the poisons of spiders and perhaps even snakes.

This method would be more efficient and reliable, suggest Dr. S. Wiener of the Commonwealth Serum Laboratories, Melbourne, and Dr. F. H. Drummond of the University of Melbourne.

Their suggestion is based on the discovery that the venom of the Australian red back spider causes paralysis of fruit flies when injected into the latter insects. Details of the fruit fly assay method are reported in *Nature* (Aug. 4).

Science News Letter, August 18, 1956



**AUTOMATION AIDE**—Skilled human fingers wire small, circular core units that serve as "nerve" cells for a new switch expected to stimulate assembly-line automation. Nicknamed "magnetic detective" by its developers, electronic engineers at Minneapolis-Honeywell's Doelcam Division, the new switch can monitor an assembly-line sequence of parts containing metal to confirm each piece and move it on, or shut down the assembly line if needed.

## BIOCHEMISTRY

## Create Potent Chemical Relative of Oxytocin

► CREATION in the laboratory of a new and powerful chemical with properties like those of the pituitary gland hormone oxytocin is announced by a team of scientists from the University of Geneva and Sandoz, Ltd., Basle, Switzerland, in *Nature* (Aug. 4).

Oxytocin itself was first synthesized by the American Nobel Prize winner, Dr. Vincent du Vigneaud of Cornell University Medical College, New York.

This pituitary gland hormone, both the natural and the synthetic, causes contractions of the uterus and release of milk from the mammary glands.

The new chemical is called valyl-oxytocin. Its effects on the uterus, on blood pressure and on the mammary glands, however, are different in different species, such as rats and cats, and on the uterus in the living animal compared with slices of uterus removed from an animal.

These findings, the scientists point out, suggest that synthetic compounds with properties like oxytocin should be put through a whole battery of tests to define their characteristics.

The scientists reporting on valyl-oxytocine are R. A. Boissonnas, St. Guttman, P.-A. Jaquenoud, J.-P. Waller, H. Konzett and B. Berde.

Science News Letter, August 18, 1956

## TECHNOLOGY

# Gambling Robot Wins High

► A GAMBLING ROBOT that has been successfully beating the majority of its human opponents is in operation at the Bell Telephone Laboratories, Murray Hill, N. J. Nicknamed SEER, the electronic computer has won 5,218 times and lost only 4,577 times against visitors and employees at the Laboratories. The odds against getting this large a lead by chance alone, D. W. Hagelbarger of the Laboratories said, are about 10,000,000,000 to one.

In addition to penny-matching to the enjoyment of those who want to match man against machine, the device has a serious purpose. It is a forerunner of computers that some day might be capable of adjusting to a changing environment. This would result in a machine that could do more than routine jobs.

Mr. Hagelbarger gives the following as one example for the use of a computer that can adjust itself:

"It is possible, if not probable, that it would be economical to design a telephone central office to measure traffic and adjust itself accordingly. It might observe that most calls from the business district occur during the day and more calls from the residential section during the evening, and connect its apparatus accordingly, yet it would be able

to readjust itself if a large fire occurred in the business section during the night."

He cautions that we are a long way "from anything as sophisticated as this," pointing out that the intellectual capacity of SEER is very small. Man, he states, has 10,000,000,000 neurons and the very dumbest army ant, 200 neurons. The electronic penny-matcher has less than 100 relays.

The strategy of the device, he reports, is based on two assumptions. The first of these is that the play of people will not be random. They are influenced by training and emotions so as to produce patterns in their play.

The second, to make the machine hard to beat, has the machine's output correlated only when it is winning and its play random when it loses.

The Bell Telephone engineer explains that the odds achieved by SEER should not be taken too seriously as many variables are factors. Some players use a simple sequence that the machine can beat just to see how fast it "catches on." This makes the machine's score higher.

On the other side, he says, are people who cheat the machine to see how it behaves when it loses.

Science News Letter, August 18, 1956

## SURGERY

# Stop Sporadic Lameness

► GRAFTS of the innermost tissue that surrounds the unborn baby in the womb have made it possible for patients disabled by painful, off and on lameness to walk and work again.

Good results with this treatment in more than 50 patients are reported by Dr. E. Troensegaard-Hansen of Charing Cross Hospital, London, in the *British Medical Journal* (Aug. 4).

The kind of lameness the patients suffered is called intermittent claudication. Severe pain in the legs makes it impossible for such patients to walk more than a few steps. Some are completely bedridden. Usually the pain disappears when the patient rests.

The condition occurs in diseases of the small blood vessels of the legs and arms in which blood circulation through the affected blood vessels is blocked, such as Buerger's disease.

The birth tissue Dr. Troensegaard-Hansen uses for grafts is called the amnion. He uses fresh tissue obtained immediately after birth of a baby. After special preparation, the tissue is tightly rolled into little "pencils" and implanted deep in the fat overlying the muscle covering in the thigh.

One patient, a 57-year-old printer who could walk only 10 to 15 yards before severe pain in both legs stopped him, now

walks three and a half miles, is perfectly fit and has kept his improvement for two years and three months. Another patient with a good result is now working as a postman.

Some patients have had to have second grafts done because the first was not successful. Altogether the new treatment has now been given to 60 patients. There was one complete failure. In three others with gangrene before the grafting was done, the condition of the leg deteriorated and amputation was necessary.

Dr. Troensegaard-Hansen believes the graft treatment works because the grafted tissue starts new blood vessels in the affected leg which increase blood circulation.

He discovered the effects of the treatment accidentally when using amnion grafts for leg ulcers in blood vessel disease. After the amnion grafts, not only did the ulcers heal but the intermittent claudication the patients had also was less severe.

He cautions that, in this disease, patients sometimes improve after long periods of no treatment except bed rest, so that more study is needed to be sure this graft treatment will prove specific.

Science News Letter, August 18, 1956

Kaolinitic clays are particularly rich in aluminum.

## ● RADIO

Saturday, August 25, 1956, 1:45-2:00 p.m. EDT

"Adventures in Science" with Watson Davis, director of Science Service, over the CBS Radio Network. Check your local CBS station.

Two U. S. Air Force surgeons in Germany will discuss "Medical Care for U. S. Armed Forces in Europe."

## MARINE BIOLOGY

# Tint Shrimp as Tagging Method

► SHRIMP HEADS colored a pastel shade are the first reliable way scientists have found of tagging the marine delicacies.

The U. S. Fish and Wildlife Service has reported development of the method by scientists at the Institute of Marine Science of the University of Texas.

Biologists found that shrimp heads could be safely and lastingly colored by injecting the sea animals with certain dyes, or by introducing the dyes into their food. The injection method gives greater color variation.

The coloring will enable scientists to investigate the movements and migrations of shrimp populations. Previous studies have only been partially satisfactory because shrimp molt periodically as part of the process of growth, and this has hampered usual methods of tagging.

The research is part of a larger Fish and Wildlife Service project, including the first comprehensive anatomical study ever made of shrimp; an examination of the structure and chemistry of shrimp tissue, and a study of the effects of environment on shrimp.

The work is being done at Tulane University, Texas A. and M. Marine Laboratory and by Fish and Wildlife biologists at Galveston, Texas.

Science News Letter, August 18, 1956

## PUBLIC HEALTH

# A.M.A. Warns of Sun-Tan Pill Dangers

► A WARNING of possible danger in a new "sun-tan pill" is issued by the American Medical Association.

The pill is trademarked Oxoralen and chemically is 8-methoxypsoralen.

"Until more is known about its reliability and toxicity it remains an experimental drug," the A.M.A. states.

The drug has been used to treat a mottled skin disorder, vitiligo, with some success. It comes from the Egyptian plant called Ammi Majus Linn, a member of the carrot family. In crude form it has been used by Arabs for centuries, but the side effects of the crude drug included abdominal cramps, kidney disease, liver disease including cirrhosis, and prolonged unconsciousness.

The drug is available on prescription with the warning to be used only under the close supervision of a physician.

Science News Letter, August 18, 1956



**MICE FOR RESEARCH**—Shown here is only a small fraction of the 350,000 mice shipped annually from the Roscoe B. Jackson Memorial Laboratory, Bar Harbor, Me. The experimental animals, especially bred for research, are used by scientists all over the world in their battle against diseases.

# MEDICINE

## 37,000 Disease Fighters

► IN ONE MONTH 37,000 fighters have left Bar Harbor, Me., for all parts of the world to battle cancer, muscular dystrophy, heart disease, diabetes, arthritis and other disease enemies of mankind.

The 37,000 are pedigreed mice from the Roscoe B. Jackson Memorial Laboratory, which renders this service at a price that only partially covers the cost of raising the animals.

The largest number of experimental animals ever to leave the laboratory in its 27 years of operation was shipped out in June, 1956. Bound for research centers all over the world, from scores of cities in the United States to cities such as Paris, Rome, and Johannesburg, Union of South Africa, these mice represent only a fraction of the 350,000 mice shipped annually from the Jackson Laboratory.

This figure is a far cry from the 89,000 mice shipped the year following the disastrous Bar Harbor fire that destroyed the laboratory in October, 1947.

When news of the laboratory's fire reached the ears of scientists around the world, they promptly set to work returning stocks of the laboratory's mice to Bar Harbor. Consequently, many of the 60 different strains of mice, some representing an equivalency of over 4,000 years of man's life, could be continued without loss.

Now, a million mice a year, nearly 3,000 a day, are produced at the laboratory, which uses 700,000 for research within its own walls.

During the fiscal year 1956-57, the Jack-

son Laboratory is expected greatly to surpass any other year in the production of laboratory mice for beneficial research to man.

Science News Letter, August 18, 1956

# GENERAL SCIENCE

## Eighth National Science Fair Set for Los Angeles

► ONE of America's fastest growing states will be host to America's fastest growing scientific youth program next spring.

The Eighth National Science Fair will be held in Los Angeles, Calif., May 9 to 11, 1957, Watson Davis, director of Science Service, has announced.

Conducted by Science Clubs of America and administered by Science Service, the National Science Fair is designed to fill the gap in the nation's supply of scientists and engineers by stimulating an early interest in science in promising students in junior and senior high schools.

More than 250,000 young scientists will build scientific exhibits for preliminary local fairs. The best of these will be selected for showing at approximately 170 local or area fairs affiliated with the National Science Fair. Two of the best of those at each area fair, in turn, will be chosen for display at the National Science Fair in the Los Angeles County Museum next May.

Awards for the best exhibits in the National Science Fair include gifts of scientific equipment and books.

Science News Letter, August 18, 1956

# AERONAUTICS

## Reactor Plane Makes Research Flights

See Front Cover

► THE WORLD'S FIRST airplane to fly with an operating atomic reactor aboard is pictured on the cover of this week's SCIENCE NEWS LETTER.

The plane is the NB-36H, and it is powered with six pusher engines whose vapor trails indicate its great altitude, estimated at eight miles or higher. The low-powered atomic reactor does not power the plane, but is used to measure effects of radiation upon instruments, equipment and the NB-36H's airframe.

Methods of shielding the flight crew, reactor operators and electronic devices from radioactivity are also tested, as are new types of nuclear instruments.

Airscoops on the fuselage aft of the wing cool the reactor when it is operating, and are thought to indicate the reactor is located amidships.

The Convair Division of General Dynamics Corporation holds an Air Force contract to develop the airframe for an atomic-powered plane.

The NB-36H's dark blue nose differs sharply from that of a conventional B-36, and the huge vertical tail carries an orange radiation symbol that distinguishes the aircraft from all others.

Science News Letter, August 18, 1956

# MEDICINE

## Use of Cortisone Is Movie Theme

► CORTISONE, one of the modern so-called miracle drugs, was unknown as a "cure" for disease less than a decade ago.

Now the famous hormone chemical that has brought relief to thousands of pain-racked arthritis sufferers is the central theme of a controversial motion picture, "Bigger Than Life" (Twentieth Century-Fox Film Corporation).

Pharmaceutical firms producing the drug will not like the film because it shows in vivid detail one effect of overdosage with the drug.

Physicians on the whole may not be disturbed because the overdosage was a case of self-medication, the film patient taking on his own more of the drug than was prescribed, despite doctor's warning against this.

Pharmacists are sure to object to the sequence showing the patient tricking an elderly pharmacist at a small drug store into accepting too readily a false prescription and dispensing the drug.

The public, however, is likely to be more impressed by the drama as the patient's mental symptoms grow more and more acute than by the moral of the picture, which is follow the doctor's orders, or by which particular drug is dangerous if misused.

Science News Letter, August 18, 1956

## CHEMISTRY

**Clue to Rubber Formation Shown by Radiocarbon**

► CARBON 14 is breaking down another of nature's secret processes and beginning to show how rubber is made by trees.

Latex tapped from the bark of the *Hevea* tree has been successfully "labeled" with the radioactive form of carbon in research sponsored by the U.S. Department of Agriculture. The experiments in which the carbon isotope was introduced into the latex in the form of an acetate were carried out at the Federal Experiment Station, Mayaguez, Puerto Rico, by Dr. Robert S. Bandurski of the Michigan State University, East Lansing, and by Dr. Howard J. Teas of the U.S. Department of Agriculture.

About eight hours were required to incorporate the radioactive element into the chemical structure of the natural rubber, and the amount of radioactivity taken up was found to be proportional to the acetate and the latex.

An enzyme preparation brought about the transfer of labeled acetate, while in other experiments radiocarbon in sugar and in carbon dioxide were not incorporated into the latex.

Although a number of kinds of rubber-like materials have been made by man, true rubber latex comes only from the *Hevea* tree and related species.

The present discovery that one step in its chemical synthesis is through the acetate grouping may lead to understanding of nature's process and how it differs from man's. The research is described in the *Journal of the American Chemical Society*. (July 20).

Science News Letter, August 18, 1956

## BIOCHEMISTRY

**Foreign Bone Marrow Makes Blood Cells**

► A MONKEY'S BONE MARROW may some day be used to save the life of a man doomed by fatal disease or atomic radiation.

If it does, it will be because the monkey's bone marrow, transplanted or injected into man's body, will go on functioning as a blood cell factory, producing monkey blood cells to circulate through the man's arteries and veins.

While the human application is in the future, at the Atomic Energy Commission's Oak Ridge National Laboratory in Tennessee, the bone marrow of a rat has saved the life of a mouse.

The rat blood cells functioned in the mouse body and saved the mouse from an otherwise fatal dose of radiation.

The finding, considered a very fundamental one, is buried in one short paragraph in the 20th semiannual report of the Atomic Energy Commission. (See SNL, Aug. 11, p. 83.)

From it may come knowledge of the genesis of radiation-caused leukemia. The

bone marrow treatment will prevent this leukemia in mice if given right after the radiation, although not if given too long after.

Not all the mice given rat bone marrow survived. The scientists think those that died may have succumbed to an allergic reaction to the foreign blood cells in their bodies. Since World War II, even the man in the street knows that only the right kind of human blood can safely be transfused to humans, and that blood of another animal, even a closely related one, would be fatal if transfused to human veins.

Even mice that eventually succumbed to a probable allergic reaction to the rat blood cells being produced in their bodies were, however, tided over the immediate period after the fatal dose of radiation.

Scientists at Oak Ridge have had some success in injecting guinea pig bone marrow into mice. They are planning now to try crossing bone marrow into larger animals, such as dogs and monkeys.

The day of the crucial experiment of putting marrow from another animal into a human may be far distant. When and if the problem of which animal to use as a source of supply is solved, the method may be used to treat victims of bone marrow disease and perhaps to allow larger, more effective doses of X-rays or other radiation treatment of disease.

Science News Letter, August 18, 1956

## PSYCHOLOGY

**"Brain Clock" May Be Mental Health Factor**

► A "BRAIN CLOCK" that regulates timing of messages to and from the brain may be a factor in mental health.

Dr. Norbert Wiener, Massachusetts Institute of Technology scientist now serving as a consultant to the Numerical Analysis Research program at the University of California at Los Angeles, said existence of such a clock has been established.

The "tick tock" of the "brain clock" is characterized by alpha rhythms, one of several brain waves recorded by electroencephalographs. Because EEG machines are relatively crude and record what is equivalent to electric leaks in the brain, it was difficult to establish the clock's existence.

A new MIT instrument, the correlograph, which serves as an "anti-noise filter" to weed out noises in the brain, has aided in finding the clock. Studies at MIT and the Massachusetts General Hospital are seeking to correlate the clock's function with other mental activity.

"It is conceivable that some mental disorders may be associated with irregularities of the clock," Dr. Wiener said. "If the clock is slow or fast, the timing of impulses to and from the brain is upset. This could account for some aberrations."

Dr. Wiener hopes research with the "brain clock" may have important, long-range implications in terms of mental health.

Science News Letter, August 18, 1956

**IN SCIENCE**

## BOTANY

**Algae in Rice Fields May Increase Yields**

► RICE FIELDS of the future may look like stagnant ditches.

Use of algae, the lowly forms of plant life that fix nitrogen from the air, to transmit food to rice plants and other crops of economic value is advocated by Dr. Mary Belle Allen, chemist associated with the laboratory of plant physiology at the University of California.

Dr. Allen has succeeded in cultivating a group of nitrogen-fixing organisms known as blue-green algae, formerly believed difficult to maintain in the laboratory. She has proved that, under greenhouse conditions, these organisms can promote growth of rice plants that would not thrive without them.

Dr. Allen planted rice in sand wet with a solution of nutrient chemicals, but found that the plants would not grow without the photosynthetic help of the nitrogen-fixing algae. She believes that the possibility of improving rice crops by flooding rice fields and inoculating them with blue-green algae would be worth exploring.

Dr. Allen describes her work in *Scientific Monthly* (Aug.). She first reported her work with the algae at the Conference on Solar Energy at Tucson. (See SNL, Nov. 19, 1955, p. 325.)

Calcium, molybdenum, cobalt and sodium are necessary for growth of the blue-green algae, Dr. Allen found, but with these nutrients, the organisms are more tolerant of heat and sunlight than had been believed by earlier investigators.

Science News Letter, August 18, 1956

## PUBLIC HEALTH

**"Tri-Jags" Lead to Red Faces With Beer or Not**

► RED FACES in beer drinkers do not always come from too much beer. They may come from "tri-jags," especially if beer has been drunk while having a "tri-jag."

"Tri" is short for trichlorethylene, an industrial solvent. A group of Michigan workers who were exposed to more than tolerable limits of "tri" on their jobs found themselves blushing after only a couple of beers.

Detective work by the Michigan Department of Health turned up the cause of the red faces and protection against "tri" exposure was installed.

Reporting the matter in *Industrial Medicine and Surgery* (July), the journal's editor, Dr. Carey P. McCord, points out that alcohol exaggerates the "tri-jag."

Science News Letter, August 18, 1956

# E FIELDS

## BIOCHEMISTRY

### Report "Breakthrough" On How Brain Works

► A "BREAKTHROUGH" for learning how the brain is organized and functions, how drugs affect it, and what chemical brain stimulation leads to different kinds of behavior may have been found.

This advance is suggested from a technique developed by Dr. Alan E. Fisher of the University of Wisconsin, at Madison.

Male rats can be driven to fast, compulsive maternal behavior, such as building nests and retrieving and grooming the young, by injections of male hormone into one spot in the brain, Dr. Fisher has found, using the new technique.

Injections of the same hormone into another spot in the brain induces sexual behavior.

Responses similar to symptoms of mental disorder, such as obsessive-compulsive acts, tics, generalized excitement, and states of over- or under-sensitivity to pin pricks or other sensory stimuli, often occur during chemical stimulation of the brain with the new technique.

In one case, maternal and sexual drives were activated simultaneously, the male rat attempting to mate with a female not in heat while a newborn rat pup he was retrieving to a nest was still in his mouth.

The male hormone may have multiple properties, the findings suggest.

How the hormones produce different kinds of behavior, whether through nerve circuits or a nerve center, should be learned through further studies, Dr. Fisher suggests in *Science* (Aug. 3).

Brain wave records from the animals while being stimulated through the new technique also promise to show more about the brain's response to different chemicals.

*Science News Letter, August 18, 1956*

## OCEANOGRAPHY

### "Hot" Pebbles Used to Study Beach Movement

► "HOT" PEBBLES have been used in England for the first time to learn how beaches drift underwater.

The hot pebbles are stones into which scientists have placed a radioactive material, enabling them to follow or track the pebbles as they are swept along the ocean floor.

Experiments with the radioactive stones by three British scientists show that in ordinary weather, where there may be a few squalls but no major storms, pebbles move along the sea floor.

The hot pebbles used in the experiment measured two inches in diameter and were round. A hole one-half inch deep and one-

eighth inch in diameter was drilled into the pebbles and the radioactive tracer barium-140 placed in the cavity.

The radioactive pebbles were then dumped 500 yards seaward off Scolt Head Island in Norfolk, in water varying in depth between 12 and 25 feet, and tracked with three Geiger counters.

Three days after the pebbles were dropped, some had moved as much as 200 feet toward shore from the original position. Later checks showed the pebbles were moving steadily and slowly inshore.

The scientists, who report their findings in *Nature* (Aug. 4), suggest that the action of the current together with the waves might cause the pebbles to move along the sea bottom.

C. Kidson of the Nature Conservancy, D. B. Smith of the United Kingdom Atomic Energy Authority and J. A. Steers of the department of geography at the University of Cambridge say that "this experiment was designed to work out a technique for the use of radioactive tracers in determining underwater movement of coarser beach material. If the method can be perfected, it will give a very important aid to coastal geographical study."

*Science News Letter, August 18, 1956*

## PALEONTOLOGY

### Smithsonian to Show Ancient Seascapes

► THE BOTTOMS of ancient seas will be vividly reproduced in the Smithsonian Institution's hall of invertebrate paleontology, to be started in Washington in 1958.

The seascape models, which visitors will be able to see through glass, will depict marine plants and animals as they existed on earth hundreds of millions of years ago.

The scenes will be lived by huge, squid-like animals with shells 15 feet in diameter and a foot thick at the ends. Octopus-like creatures the size of cartwheels will be seen poised amid colorful sea plants. Lifelike starfish, clams and sea lilies will add realism to the displays.

The sea bottoms of former ages were similar to those of today. The same kinds of animals lived then as live now, but details of their structures were different.

Scientists have been able to reconstruct these ancient seas by studying the fossils of small shelled creatures called brachiopods. About 350,000,000 years ago brachiopods, similar to worms, were perhaps the most abundant animals on earth. Called the Ordovician period, this age had few if any land animals.

During the millions of years in which sea bottom mud was compressed into rock, the brachiopods, which had attached themselves to objects on the sea bottom, became embedded in the rock formations.

A few species of brachiopods still survive. Scientists have been able to deduce much about the nature of ancient seascapes by studying the modern brachiopods' habits.

*Science News Letter, August 18, 1956*

## TECHNOLOGY

### Electronic "Eye" Aids Blind Phone Operators

► BLIND OPERATORS of private telephone switchboards can now use an electronic "eye" weighing less than an ounce to detect incoming calls.

The light-sensitive device, developed by Bell Telephone Laboratories, New York, fits the index finger's tip and is the only additional equipment a blind operator needs.

When the signal for an incoming call sounds, the blind operator finds the light indicating the correct line by using the electronic "eye" attached to the index finger. On reaching the lighted lamp, the transistor device is activated and the operator hears a signal through the headset. It is so tiny the cord connection can be held in the same hand.

*Science News Letter, August 18, 1956*

## VETERINARY MEDICINE

### Two Tigers Born With "Upside-Down Stomach"

► TIGERS as well as humans can be born with diaphragmatic hernia, a condition publicized some years ago as "upside-down stomach."

Two cases in tigers have been seen at the Philadelphia Zoological Gardens. They are the first cases of the condition in any animals at the Philadelphia Zoo, where more than 6,000 mammals have been examined post mortem.

Both cases were in female Siberian tigers. They were two of four littermates born at the Copenhagen Zoo and received at the Philadelphia Zoo when five-month-old cubs.

One died about two weeks after its arrival. This animal and its three littermates had all suffered a severe stomach and intestinal upset after a very heavy meal.

Examination after death showed the animal had a defect in its diaphragm with a hernia sac into which part of the stomach and intestines had risen.

About a year and a half later the second female tiger, which with its other two littermates had had numerous attacks of indigestion and diarrhea, lack of appetite and depression, died. Examination after death showed that it, also, had a gross deformity of the diaphragm with the stomach and spleen in the diaphragm hernia sac.

The first animal had died because of strangulation of a loop of intestine in the hernia sac. The second died of multiple complications of the diaphragmatic hernia. In both cases, the findings pointed to the hernias being congenital.

The cases are reported in the *Journal of the American Veterinary Medical Association* (Aug.) by Dr. Robert S. Brodey of the University of Pennsylvania School of Veterinary Medicine, where the second tiger was taken when it got sick, and Dr. Herbert L. Ratcliffe of the Penrose Research Laboratory, Zoological Society of Philadelphia.

*Science News Letter, August 18, 1956*

## GEOGRAPHY

# Last Great Land Journey

Antarctica, almost as large as Australia and Europe together, was first sighted in 1820. An expedition will attempt the 2,000-mile crossing from Weddell Sea to Ross Sea.

By **CHRISTINE ROSS**

Science Service Correspondent

► **HOW MANY** persons have the remotest idea where they will be on New Year's Day 1958?

Sixteen men know that if all goes according to plan, they will see the New Year in at the South Pole. They are the members of the Commonwealth Trans-Antarctic Expedition, who in November will set off from London on the second stage of what must be the last great land journey in the world.

Dr. Vivian Fuchs, leader of the expedition and originator of the scheme, is no stranger to the Antarctic, for he has already spent two years on active exploration with the Falkland Islands Dependencies Survey, for which he was awarded the Founder's Gold Medal of Britain's Royal Geographical Society. He answers questions briefly and directly, neither minimizing the difficulties nor dramatizing the dangers, and he gets up from time to time to trace on a large wall map the route the expedition will take.

"There are two things I would like to say a word about right at the start," Dr. Fuchs said. "They are the nature of the expedition and its purpose. First, the expedition is a Commonwealth venture. It will cost \$1,400,000, and four Commonwealth Governments have helped to finance it—Britain, New Zealand, Australia, and South Africa.

## Purpose Is Scientific

"Men from all these countries are taking part in the expedition, and the leader of the New Zealand party is Sir Edmund Hillary, who needs no introduction. George Lowe, another New Zealander who was in the Everest expedition, will make the crossing with the United Kingdom party as the official photographer.

"The Theron, in which we made the long journey to Vahsel Bay last winter, and which stood up to such a buffeting in the pack-ice, was a Canadian vessel, built as a sealer for Arctic waters, and her captain and crew were expert in ice navigation.

"Now for our purpose. This is a scientific expedition, and the crossing, interesting as it is in itself, is not the chief object. The main party will consist of two geologists, including myself, two surveyors, both with previous Antarctic experience, two meteorologists, a seismic physicist, a glaciologist, two engineers, a doctor, a photog-

rapher, a radio operator, two pilots and an air mechanic. So you see the kind of body we are."

They would be making constant scientific observations, Dr. Fuchs pointed out. These would include mapping and survey work, meteorology, climatology, glaciology, seismic soundings, which, on the actual crossing, would be taken every 20 or 30 miles to record the depth of the ice. Geological investigations would be made whenever exposed rock presented an opportunity.

Constant physiological tests would be made to discover the effect on the human body of intense cold, how it affected the appetite for different kinds of food, and in what respects the effect varied according to whether a man was on foot, in the air or riding on a tractor.

"I would not feel justified," Dr. Fuchs said, "in spending so much money and so many years out of men's lives for the crossing of the continent as an end in itself. We are going to do a serious, planned job, and crossing the continent happens to be an essential part of it."

The expedition is divided into two parties, one under Dr. Fuchs, known as the main or crossing party; the other, led by Sir Edmund and called the New Zealand or support party. In the first there will be 16 men, including an Australian, two New Zealanders, and a South African; the second party will number 22, of whom two are from the United Kingdom and five belong to New Zealand's International Geophysical Year party.

Dr. Fuchs said that, although the Commonwealth Expedition is not directly connected with the Royal Society's Geophysical Year Expedition, it will cooperate with it so far as it is able in the course of its work.

## Modern Equipment Used

"Our expedition," he said, "has all the modern advantages. We shall be using tracked vehicles, Sno-cats for the crossing and weasels for depot laying, with aircraft for support and reconnaissance, and dog sledges with trained huskies, and trained drivers too, for special work, and in case we can not take the vehicles down the glacier on the descent to the Ross Sea.

"That will depend on the advice Sir Edmund's party are able to give us when we meet them near the pole. For the New



**CROSSING THE "LAST CONTINENT"**—Dr. V. E. Fuchs, who will lead the Commonwealth Trans-Antarctic Expedition, explains the Expedition's plans for crossing the continent. The 2,000-mile trek from Weddell Sea to Ross Sea across the South Pole has been called the one really great adventure left to man. Dr. Fuchs will be aided by Sir Edmund Hillary, first conqueror of Mt. Everest.

Zealand party will have come over a route never before explored. We might even have to abandon the tracked vehicles and ski the rest of the way, taking the stores on the dog sledges."

"Our base hut," Dr. Fuchs said, "will have normal electric lighting from two six kilowatt generators, solid fuel heating, with auxiliary electric fires and liquid fuel stoves. Radio communication will be maintained with the Falkland Islands and possibly with Cape Town, and it is also hoped that we shall be able to speak direct to London from the base."

This, of course, is if everything goes according to plan. In an expedition of this kind, spread over such a long period, there are always so many things you have to take into account—illness, loss of stores or equipment, accident to men, the aircraft, the tractors, the dogs."

### Airplanes for Reconnaissance

Airplanes will do reconnaissance and route-finding, Dr. Fuchs explained, "Aircraft are useless for exploration without ground control. From the air you quite definitely cannot do our work. You cannot, for instance, map satisfactorily without ground parties, or study the habits of the ice. A geologist could not study the composition of rocks from the air."

In November of this year, the main party under Dr. Fuchs will sail from the United Kingdom for the Weddell Sea, this time in the Magga Dan, an ice-going vessel now under construction in a Danish shipyard. About the same time Sir Edmund's party will set off from New Zealand for McMurdo Sound in the Ross Sea.

The general plan is for the two parties to set up bases on either side of the continent and for each to work toward the pole. The base on the Weddell Sea has already been established earlier this year, and named by Dr. Fuchs "Shackleton" in memory of the great explorer who planned to cross the continent as long ago as 1914.

### Base Camp Prepared

A winter party of eight was left behind to build the base camp and to haul to safety further inland the 350 tons of stores landed on the ice from the Theron. They will also carry out such reconnaissance as is possible in the intense cold and round-the-clock darkness of the Antarctic winter, and generally prepare the way for the arrival of the main party in January, 1957.

"The season in the south is so short that you cannot just arrive and put down a base and go straight on across," Dr. Fuchs explained. "You need to have the kicking-off base ready for you."

"In the second season, that is the Antarctic summer of 1956-57, we shall establish a depot approximately 300 miles inland from Shackleton. The actual crossing, which will take four months, counting the delays for scientific observations and other work, will be made between November, 1957, and March, 1958. For we must

all be clear away from the Ross Sea by then, before the ice closes in again."

Sir Edmund's party will meanwhile have the important task of setting up depots to replenish the supplies of the main party along the stormy plateau 10,000 feet above sea level. Sir Edmund intends to call his base in the Ross Sea "Scott."

From there it will be his responsibility to reconnoiter the Koettlitz and Ferrar Glaciers and select the route down which his party will eventually guide Dr. Fuchs and his companions at the end of their long and arduous journey.

They will also establish a depot about 150 miles inland from Scott, and another near Mount Albert Markham, about 500 miles from the Pole, where they will expect to meet the crossing party at the end of January, 1958.

It will be a momentous occasion. Both parties will then travel back together along the route pioneered by the New Zealand party. The following month should see the withdrawal of the whole Trans-Antarctic Expedition to New Zealand, which has been the point of departure and return for many another expedition to the unknown continent.

Science News Letter, August 18, 1956

### PSYCHOLOGY

## U. S. Polar Airmen Will "Thaw" in Sydney

► U. S. AIR FORCE men flying over the Antarctic with Operation Deepfreeze will spend their furlough in Sydney to "thaw."

Globemaster transport planes will pick up about 15 men each week from the Little America base on the shores of McMurdo Sound. Capt. H. C. Allen, liaison officer for the U. S. expedition, is on his way to Christchurch, New Zealand, to make arrangements for a base maintenance camp for the expedition aircraft.

Eight Globemasters would be used to fly materials from Christchurch to McMurdo Sound base where 93 men were stationed the year round.

The first Globemaster would reach Christchurch in September. Smaller planes would be dismantled and flown over to Antarctica in pieces. The Globemasters would drop supplies and sections of prefabricated buildings to sites picked out by the U. S. Navy.

The normal term of service in Antarctica is one or two years with no leave.

Science News Letter, August 18, 1956

*Yours - the ONE 4" Reflector Telescope Now Used and Approved by Over 40 Colleges!*

the famous  
**DYNASCOPE®**

COMPLETE  
for only **\$49.95**

F.O.B. Hartford, Conn.  
Shipping Wt. 16 lbs.  
Express Charges Collect



HIGHEST POWER and PRECISION  
—at LOWEST POSSIBLE COST!  
Used, approved and recommended by more schools, planetaria and professional astronomers than any other telescope at the price anywhere! You'll agree over 40 colleges can't be wrong!

The 4" parabolic mirror gives you 1/2 more light than any 3 1/2" mirror! Gives you exquisite images of star clusters, nebulae comets, planets, eclipses and fully capable of "splitting" the finest doublets! Finished to most exacting specifications—guaranteed to perform to Dawes' limit for its size!

Comes to you COMPLETE—nothing else to buy, no extras! You take no risk. We UNCONDITIONALLY GUARANTEE DYNASCOPE to give you absolute satisfaction—or your money back. Prompt delivery now. Send check or money order today! Manufactured And Sold Only By

**DEPT. 320 CRITERION MANUFACTURING CO.**  
331 Church St., Hartford 1, Connecticut

#### ADVANCED FEATURES

- 1) 4-INCH PARABOLIC MIRROR—aluminized and zircon quartz for longest life!
- 2) 3 ACHROMATIC EYEPIECES—65X Huygens, 130X and 167X Ramsdens!
- 3) RACK & PINION Focus!
- 4) 4-POWER Achromatic FINDER SCOPE!
- 5) Combination Equatorial & Alt-azimuth MOUNT with free-moving Polar Axis!
- 6) BAKELITE TUBE!
- 7) 4-POINT Tube Suspension!
- 8) 33" Hardwood folding TRIPOD!

**PROOF OF SUPERIORITY**  
(On Request—A List of Great Institutions Now Using the 4" DYNASCOPE)

#### TESTIMONIALS:

##### FROM AN OBSERVER

On clear "good-seeing" nights my Dynascope easily reveals the Alpine Valley and the Straight Wall on the Moon. It will show three peaks in the floor of the Plato crater. It will split the star Mizar into its major components clearly. It will separate Saturn's ring and show six bands on the face of Jupiter. Also it will project a two-foot diameter disk of the sun showing sunspots in vivid detail... As an Englishman might express it, "Dynascope optics are a little bit of alright."

—VICTOR W. KILLICK,  
In Charge of Astronomical Observatory, Sacramento Junior College, Calif.

##### MANY YEARS EXPERIENCE

... I have had many years experience in astronomy, and as Junior Leader here in Atlanta I always recommend Dynascope.

—LEONARD B. ABBEY,  
Jr., Decatur, Ga.

##### CANNOT BE EQUALLED

I still don't see how you can produce a parabolic mirror of this focal ratio at the price. Evelyn Lyra was quite easy... on the 130 power ocular. I was more than pleased when it resolved these four stars as four tiny, sharp, brilliant gems... and each tiny disc was sharp and round, with the diffraction rings concentric and sharp.

... For the price you ask, I do not believe that it can be equaled in any way. The oculars are excellent, and the entire instrument shows careful workmanship. How you do it is beyond me.

—G. N. JOHNSTONE,  
Albuquerque, N. M.

# Books of the Week

For the editorial information of our readers, books received for review since last week's issue are listed. For convenient purchase of any U. S. book in print, send a remittance to cover retail price (postage will be paid) to Book Department, Science Service, 1719 N Street, N.W., Washington 6, D. C. Request free publications direct from publisher, not from Science Service.

**BIOLOGY OF THE LABORATORY MOUSE**—George D. Snell, Ed.—Dover, 497 p., illus., \$6.00. A republication of a standard guide, compiled by the staff of the Roscoe B. Jackson Memorial Laboratory, which was originally published by Blakiston in 1941.

**THE BOOK OF REPTILES AND AMPHIBIANS**—Michael H. Bevans—Garden City Books, 63 p., illus., \$2.50. Describing and illustrating many of the reptiles and amphibians of the United States.

**CALIFORNIA AND THE SOUTHWEST**—Clifford M. Zierer, Ed.—Wiley, 376 p., illus., \$11.25. A comprehensive presentation of the geography of California, Nevada, Utah and Arizona, an area that comprises one-seventh of the United States.

**A CLASSIFICATION OF THE FIRST INSTAR LARVAE OF THE MELOIDAE (COLEOPTERA)**—J. W. MacSwain—University of California Press, 182 p., illus., paper, \$3.00. Based largely on the larvae, and including a study of the genera of the world and of all levels of classification for North American forms.

**CRICKETS**—Olive L. Earle—Morrow, 62 p., illus., \$2.00. The life cycle of this insect explained for children and anyone who has heard the chirp of the cricket.

**DISEASES OF FRUIT CROPS**—Harry Warren Anderson—McGraw-Hill, 501 p., illus., \$8.50. The major emphasis is on conditions as they exist in the United States and Canada.

**ESSENTIAL UROLOGY**—Fletcher H. Colby—Williams & Wilkins, 3rd ed., 656 p., illus., \$8.00. For students and residents and for those who are preparing for the examinations of the Board of Urology.

**EXPLORING MARS**—Roy A. Gallant—Garden City Books, 62 p., illus., \$2.00. With the close approach of Mars this September, interest in the "red planet" is great. This book gives in simple language many interesting facts and much of the history of the observation of our close planetary neighbor.

**HISTORY OF ANALYTIC GEOMETRY**—Carl B. Boyer—Scripta Mathematica, Studies No. 6 and 7, 291 p., \$6.00. Only those parts of analytic geometry that might be included in an elementary college course are covered. For this reason, developments of the last hundred years are largely omitted, since they are more advanced and more specialized.

**A NEW COURSE OF PLANTS AND ANIMALS**—M. A. Grigg—Cambridge University Press, Book I, 216 p., illus., \$1.50. A nature study guide for young people.

**PROCEEDINGS OF THE INTERNATIONAL CONFERENCE ON THE PEACEFUL USES OF ATOMIC ENERGY: Volume 1, The World's Requirements for Energy: The Role of Nuclear Energy—United Nations (Columbia University Press), 479 p., illus., \$8.00. Discussing the anticipated requirements for energy and the possible ways in which nuclear power can be used to overcome the shortage.**

**THE STARS BY CLOCK AND FIST**—Henry M. Neely—Viking, 192 p., illus., \$4.00. Telling young people and any beginning amateur astronomer a way to locate and identify stars by using a simple star clock and one fist.

## Powerful Electric Generator

Cost Over \$20.00 New; While They Last, \$3.95  
Generates Up to 75 volts.  
Use to generate electricity, ring bells, light up lights, as a medical battery, deliver terrific electric shock as joke, many electrical experiments, classroom use, etc. Cost over \$20 new. Used but excellent operating condition. Hand crank or gear wheel drive. Made by leading electrical companies. Each has 3 or 4 five-inch 1-in. bar magnets (alone worth more than total cost), generating about 100 watts, wire leads, gear crank, ready for use. Originally used in crank phones. Complete unit weighs over 5 lbs. Each Postpaid \$3.95. Johnson Smith Company, Dept. 332, Detroit 7, Mich.

## Pellet 10-Shot Automatic

Shoots 10 pellets as fast as you pull trigger. For indoor target work & fun. Automatic action. Holds 10 pellets. Full size model of Colt .45. 6 1/2-in. long. Plastic molded. Moving parts of the cast metal. With supply of pellets. Holster 50¢. Extra Pellets \$1.65 (25¢ pkg.). Each Johnson Smith & Co., Dept. 332, Detroit 7, Mich.

## New Catalog of 3000 NOVELTIES

Tricks, jokes, funmakers, hobbies, magic, gadgets, sports, cameras, jewelry, auto & bike items, science articles, office & house gadgets, books, seeds, games, music, etc. Catalog 10¢. Johnson Smith Company, Dept. 332, Detroit 7, Mich.

**THE STRENGTH TO MEET OUR NATIONAL NEED**—Charles G. Dobbins, Ed.—American Council on Education, 125 p., paper, \$1.50. A statement presented to the President's Committee on Education Beyond the High School, together with major addresses given at the conference.

**VALENCY AND MOLECULAR STRUCTURE**—E. Cartmell and G. W. A. Fowles—Academic, 256 p., illus., \$5.80. Written to provide an introductory text in which an elementary account of the development of the quantum theory is combined with a survey of its application to structural chemistry.

Science News Letter, August 18, 1956

## BIOPHYSICS

### Test Body's Reaction by Electromagnetic Method

► AN ELECTROMAGNETIC METHOD that measures blood flow by electromagnetic induction will be used in a long-range survey of the human body's response to physiological and psychological factors, disease and drugs.

The method was developed by Dr. Alexander Kolin of the U.C.L.A. department of biophysics. The survey will be conducted at the University of California Medical School, under a Los Angeles County Heart Association grant.

An organ's response to a great variety of factors is characterized by changes in blood flow through the organ. These changes, however slight, can be measured by placing the part of the body containing the artery that supplies the organ's blood in a magnetic field.

Electrodes embedded in small plastic sleeves, which fit around the blood vessel, pick up electrical signals induced in the moving blood. Signals are carried by wire to a recording system. The plastic sleeves can be implanted indefinitely in experimental animals.

It is planned to make a systematic study in this manner of the responses of all body organs to many factors. The project will enable U.C.L.A. scientists to test the effects of various drugs, as well as physiological and psychological stress, on such organs as the heart, brain and uterus.

Science News Letter, August 18, 1956

## MAKE MONEY WRITING .. short paragraphs!

You don't have to be a trained author to make money writing. Hundreds now making money every day on short paragraphs. I tell you what to write, where and how to sell; and supply big list of editors who buy from beginners. Lots of small checks in a hurry bring cash that adds up quickly. No tedious study. Write to sell, right away. Send for free facts. BENSON BARRETT, Dept. 163-V, 7464 Clark St., Chicago 26, Ill.



## MODERN GREEK—34 languages available for FREE TRIAL AT HOME

With LINGUAPHONE—The World's Standard Conversational Method—You Start to SPEAK another language TOMORROW or IT COSTS YOU NOTHING! By listening to Linguaphone's fine life-like recordings for just 20 minutes a day, you can learn another language AT HOME—the same easy, natural way you learned to speak English long before you went to school.

Only LINGUAPHONE brings the world's best native language teachers into your home. You hear men and women converse about everyday matters in their native tongue. You listen—YOU understand—YOU SPEAK correctly as they do. It's like living in another land.

That's why Linguaphone is used 'round the world by scientists, educators, governments and business firms. More than a million home-study students of all ages have learned to speak another language this ideal way.

Send or call today for Free booklet fully describing the conversational method; also details on how you may obtain a COMPLETE Course unit in the language you choose on FREE TRIAL. Linguaphone Institute, T-31-086 Rock Plaza, N. Y. 20. CI 7-0830.

LINGUAPHONE INSTITUTE CI 7-0830

T-31-086 Rock Plaza, New York 20, N. Y.

Please send me: ☐ FREE Book.

☐ Details on FREE Trial. No obligation, of course.

My language interest is: .....

Name: .....

Address: .....

City: .....

Zone: .....

State: .....

World's Standard Conversational Method For Over Half a Century

# Books Worthwhile Reading

SCIENCE  
SERVICE  
PUBLICATIONS

Special Offer Saves 37%: Complete Set of 7 Items—Only \$6.50

## ATOMIC FACTS

Just the information about atomic energy that you need to know. Easy to read chapters and fundamental information arranged for easy reference. The H-Bomb . . . Our Atomic Future . . . Structure of the Atom . . . How Atomic Bombardment Works . . . Birth of Matter . . . Neutron-Proton Exchange . . . Mesons Created in the Cyclotron . . . The Atomic Nucleus . . . Electron Shells . . . Units of Mass, Charge and Energy . . . Atomic Energy Common, Fire Rare . . . Atomic Energy Progress . . . Atomic Energy Engineering . . . Uranium Prospecting . . . Radioactive Wastes . . . Acute Radiation Illness . . . Isotopes Report Reactions . . . Photographing Nuclear Particles . . . Radiation Detection Instruments . . . In Case of Disaster . . . Naming the Isotopes . . . First Tracer Chemistry . . . Prediction of the Neutron . . . The First Tritium . . . Slow Neutron Bombardment. Fully indexed, cloth bound. Edited by Helen M. Davis. 112 p. Postpaid \$2.00

## ORGANIC CHEMISTRY FOR THE HOME LAB

Learn to think chemically . . . Mauve, the first aniline dye, was discovered one hundred years ago by a young chemist who followed where his curiosity led him. You can make this and other beautiful dyes, interesting plastics, fundamental chemicals, by following these clear directions . . . a handy book, written by Burton L. Hawk, which not only tells you how to make individual chemical products, but gives you general methods and shows you how to apply them to new problems. Edited by Helen M. Davis. 100 p. Postpaid \$2.00

## SCIENCE EXHIBITS

Science Exhibits tells you how to select your material, how to plan its presentation, how to display, to label and to light it, how to describe the work you have done, how to tell about it so that those who think science is "too difficult" will understand and share your enthusiasm . . . Contains new samples of research project reports of the Science Talent Searches conducted annually by Science Service for the Westinghouse Science Scholarships. These reports have been selected by the Science Talent Search judging staff as outstanding for subject and method of presentation . . . Describes the Science Youth Movement carried on by Science Clubs of America. This organization, comprising more than 15,000 Science Clubs in the high schools of the country, encourages young people's enjoyment of doing science projects,

culminating in the local and National Science Fairs. This organization is *doing something* to ameliorate the shortage of young scientists, technicians and engineers. Fully indexed, cloth bound. Edited by Helen M. Davis. 96 p. Postpaid \$2.00

## THE CHEMISTRY WE USE

A compilation of "Home Lab" experiments, a monthly feature of CHEMISTRY magazine. Written by Burton L. Hawk . . . and designed for a simple but adequate home laboratory in which real chemical preparations can be made . . . The World We Live In, The Air We Breathe, The Water We Drink, The Food We Eat, The Clothing We Wear, The Coins We Spend, The Drugs We Take, Lesser-Known Elements We Study, Other Materials We Use . . . A Practical Introduction to the Chemistry of Everyday Things. Fully indexed, cloth bound. 87 p. Postpaid \$2.00

## SCIENTIFIC INSTRUMENTS YOU CAN MAKE

How teen-age scientists have designed and built astronomical instruments, spectroscopes, Tesla coils, oscilloscopes, cloud chambers, atom counters, Van de Graaff generators, electronic computers, stroboscopes, and demonstrated ultrasonics, chromatography, photomicrography and mathematical constructions. Illustrations show the completed instruments. References guide the reader to research in the fields opened by use of these instruments. Fully indexed, cloth bound. Edited by Helen M. Davis. 96 p. Postpaid \$2.00

## LAWS OF MATTER UP-TO-DATE

A new edition of the list of fundamental laws of physics which have been changed as the result of new discoveries of the atomic age. By Helen M. Davis, editor of CHEMISTRY magazine. Postpaid 100 copies for \$3.00. Each 10c

## PERIODIC TABLE OF ELEMENTS

Both the Mendeleyev and Bohr arrangements. An up-to-date chart of the chemical elements by groups and series with spaces for new elements through the hypothetical No. 118, which can be filled in as they are announced. By Helen M. Davis, editor of CHEMISTRY magazine. Postpaid 10 copies for \$1.00. Each 25c

To Science Service • 1719 N Street, N.W. • Washington 6, D. C.

Send me publications I have checked below. \$ \_\_\_\_\_ enclosed.

- ☐ Atomic Facts
- ☐ Organic Chemistry for the Home Lab
- ☐ Science Exhibits
- ☐ The Chemistry We Use

- ☐ Scientific Instruments You Can Make
- ☐ Laws of Matter Up-To-Date
- ☐ Periodic Table of Elements
- ☐ All @ \$6.50.

Name \_\_\_\_\_

Address \_\_\_\_\_

City \_\_\_\_\_ Zone \_\_\_\_\_ State \_\_\_\_\_

This offer good during August and September only.

## PUBLIC SAFETY

# Play Safe in Small Boats

► IF YOU are going out in a small boat, either to fish or for fun, play it safe. Otherwise you may end up one of the 1,200 or so persons who die each year in the United States as a result of a small-boat accident.

Small-boat accidents account for four of every five lives lost in all types of water transportation. Men, especially those aged 20 to 24, are the chief victims. Motor-driven craft, largely the outboard type, accounted for three of every five deaths in small-boat accidents in 1954 and 1955, Metropolitan Life Insurance Company records show.

Rowboats were involved in about one-fifth of the deaths, while canoes and rafts accounted for most of the others. Surprisingly, only two of the deaths involved sailboats.

Most of the deaths were preventable, the company found. Its statisticians report that "in many instances small boats turned over when occupants stood up or shifted their position in the craft. Overloading was also responsible for an appreciable number of deaths.

"Others resulted from such dangerous practices as speeding, sharp turning, and engaging in horseplay near dams or falls. A goodly number of the persons drowned did not know how to swim; in some instances they were alone or with fellow passengers who also were nonswimmers.

"Physical weakness or impairment was a contributing factor in a few deaths.

"Sudden squalls, severe winds and treacherous currents not infrequently played a part in causing small-boat accidents. Boats hitting submerged objects also added to the toll of victims."

Their report warns that it is "foolhardy to venture out without adequate knowledge of how to operate a boat safely. Craft should be checked periodically for soundness of condition as well as for the adequacy of lifesaving equipment. Warnings

on storms and water conditions should be heeded. Persons who cannot swim should stay out of small boats or be in the company of several expert swimmers."

Science News Letter, August 18, 1956

## ENTOMOLOGY

## Medfly Control Research Begun

► A RESEARCH PROGRAM has been set up to discover ways of controlling the Mediterranean fruit fly, a destructive citrus pest that has cost the Federal Government more than \$2,000,000 and brought quarantine regulations to many sections in Florida.

The so-called Medfly, which made its first invasion of continental United States in nearly 30 years this spring, has thus far been confined to Florida counties, but nearby states are keeping a sharp lookout for the dreaded insect.

Strong measures have been taken to assure that the Medfly does not get out of its present boundaries. Meanwhile, research at the University of Florida's Agricultural Experiment Station, Gainesville, is expected to provide the means of complete eradication.

The work being done at the experiment station will emphasize fumigation of citrus, mangoes and pink tomatoes, and residue studies with the insecticides malathion, parathion, ethylene di-bromide and methyl bromide. Ethylene di-bromide and methyl bromide are being used to fumigate fruit shipped from quarantine areas.

The program was established at a recent conference with Agricultural Experiment Station staff members, Florida State Plant Board workers, and representatives of the U. S. Department of Agriculture in Washington and at Miami Medfly headquarters.

The entomologist who first identified the Mediterranean fruit fly in the current infestation, Dr. D. O. Wolfenbarger of the Subtropical Station, Homestead, is serving as liaison between control and research agencies at Miami Medfly headquarters.

Science News Letter, August 18, 1956

# Questions

GEOGRAPHY—What is the last great land journey? p. 106.

□ □ □

MARINE BIOLOGY—Why are shrimp being tinted pastel colors? p. 102.

□ □ □

MEDICINE—How many years' equivalency to man's life are represented by some mouse strains? p. 103.

□ □ □

METEOROLOGY—How might tornadoes give their own warning of approach? p. 101.

□ □ □

PUBLIC HEALTH—What are the dangers of using sun-tan pills? p. 102.

□ □ □

Photographs: Cover, Convaire; p. 99, General Electric Company; p. 101, Minneapolis-Honeywell Regulator; p. 103, Roscoe S. Jackson Memorial Laboratory; p. 106, British Information Services; p. 112, Rubber Scrubber Corporation.

## BIOPHYSICS

## Probe Radiation-Caused Defect in Blood Clotting

► MORE KNOWLEDGE of how radiation, whether from X-rays or nuclear weapons, acts on protein chemicals in the living body may be coming from studies by Drs. Peter Rieser and Robert J. Rutman at the University of Pennsylvania.

The specific effect of low doses of radiation on fibrinogen, chemical important in blood clotting, has been probed by these scientists. Ability of fibrinogen to act on thrombin to form a clot is affected so that the clot forms more slowly.

The radiation effect is not merely to inactivate the fibrinogen. A specific change takes place in the fibrinogen molecule, the scientists found.

Such a specific change, they suggest in *Nature* (Aug. 4), may represent a mechanism of interaction between radiation and biologically active protein chemicals.

"This," they point out, "may be of importance with regard to generalized radiation damage."

Science News Letter, August 18, 1956

## GOLF: Your LEFT SHOULDER makes the amazing difference!

One of the most startling discoveries to emerge from wide research in the golf swing is that your game literally hinges on your left shoulder!

How this is so and how to use this great discovery to improve your own game beyond all expectations in a matter of short weeks is set forth in **THE GOLF SECRET** by Dr. H. A. Murray—a medical doctor, golfer, and golf researcher, who has applied his expert knowledge of anatomy in this sweeping and utterly different study of the golf swing.

His method has now been tested on a large scale and been found to yield simply astounding results! Not only do golf scores take a sudden drop, but with the new method good golf is a hundred times easier than bad—because it is **NATURAL** (not strained) golf.

You may find out "the golf secret" for yourself, without risk. See below.

Fully illustrated ORDER NOW:

THE GOLF SECRET by H. A. Murray  
\$2.50 Postfree • 5-Day Money-Back Guarantee  
EMERSON BOOKS, Inc., 838-K  
281 W. 19th St., New York 11

## FREE NATURAL HISTORY CATALOG

An open door to adventure with rocks, minerals, plants, animals, stars.

Books, booklets, maps, charts, games, collection equipments, records and mounting materials, etc., helpful to the naturalist, nature or science teacher, summer camp leader, nature student or scout.

## NATUREGRAPH COMPANY

San Martin, California

## MICROSCOPE SPECIALISTS

- Wide choice of high quality used microscopes at fair prices.
- Large selection of unusual prepared slides from many fields of study.
- Mounting media, covers, slides, stains, chemicals, zoological and botanical specimens available.
- New objectives, oculars, mechanical stages, condensers, nose pieces, etc., made to our specifications in Western Germany.

Send for FREE scientific catalog!

RESEARCH SCIENTIFIC SUPPLIES, INC.  
60 Wall St. New York 5, N. Y.

## MEDICINE

## Formula 4 Stops D.T.'s By Detoxifying Action

► A COMBINATION of chemicals known as Formula 4 overcomes delirium tremens quickly by a detoxifying action, doctors at Harlem Hospital in New York report.

Of 15 patients who got this formula injected into their blood stream, six were free of symptoms in 24 hours or less. Another three recovered from the delirium tremens symptoms in 48 hours, and three more in 72 hours.

All but one of the patients had been brought to the hospital with stab wounds or other injuries, such as broken bones, besides the delirium tremens.

The formula used was made up of calcium glucuronate, sodium glutamate, cysteine, ascorbic acid, glycine, d-calcium pantothenate and succinic acid.

It was designed to make less harmful toxic substances that may be formed in the body after stress, such as injury or burns. At such times, the body may not be able to handle these substances adequately to maintain its normal internal equilibrium.

The doctors reporting favorable results with the formula in cases of delirium tremens are Drs. Eustace E. Corbin, Aaron Prigot and Aubre de L. Maynard. They suggest, in their report in the *Harlem Hospital Bulletin* (June), that it should be studied further both in delirium tremens and other disease states.

Science News Letter, August 18, 1956

## Do You Know?

Starch sponge, developed by U. S. Department of Agriculture chemists, has been proposed as a carrier of medicaments for slow release within the body.

About 1900, John Milne invented and spread throughout the civilized world the first *seismograph* to use photographic recording.

Electric shockers are used to "knock out" fish temporarily to permit stream population counts.

The dogwood borer is a serious pest of flowering dogwood.

The spotted alfalfa aphid, an insect so tiny it is barely visible, is expected to wipe out up to \$13,000,000 worth of alfalfa in the U. S. in 1956.

During 1955, the frequency rate of all accidental injuries in the U. S. atomic energy program decreased 29% below the average of the previous three years.

Colds are more frequent among women than among men.

### AMAZING NEW DESIGN MICROSCOPE

60 to 450 POWER

Take advantage of our tremendous foreign purchase. Ideal for use by the Amateur, Scientist, Student.

- 1-New Triple Revolving Turret with 100X, 200X and 300X precision ground and polished lenses.
- 2-Two interchangeable eyepieces of 6X and 15X with precision ground and polished lenses.
- 3-SIZE MAGNIFICATIONS for all purposes—60X, 120X, 150X, 180X, 200X and 450X.
- 4-New Patented Sub-Stage with SELF-CONTAINED LIGHT. No external light source is needed.
- 5-Large sub-stage mirror for use with external light when desirable.
- 6-All Metal Body—precision made, inclines through 90 degrees.
- 7-Special hardwood case and 3 glass slides included.

**FREE WITH MICROSCOPE**  
This right piece dissecting set contains Scalpel, Tweezers, etc. Free with microscope above.

**ONLY \$125**

### SAVE UP TO 50% ON IMPORTS and GOVT SURPLUS

**2PC. 4-6-10 POWER EYE LOUPES**

The newest in Eye Loupes. A 2 power, 10 power precision unit with a 6 power lens that screws onto a 4 power base—can be used as a 4x, 6x or 10 power magnifier. A \$2.50 value.

**ONLY \$1.25**

### NEW PALLEY 100-200-300X MICROSCOPE

IDEAL FOR STUDENTS, AMATEURS, SCHOOLS, ETC.

**ONLY \$895**

An unsurpassed value! This is NOT A TOY! The single revolving objective lens turret allows you to select a 100X, 200X or 300X magnification. Has right or left hand rack and pinion adjustment for smooth, precise movement. The all metal body inclines 90 degrees. Adjustable plano-substage mirror. Complete in hardwood case. Satisfaction fully guaranteed or money back.

### SURPLUS SPECIAL 20-1 SPEED REDUCER

Precision built for Army Gun Control mechanism. Excellent for experimental and for Laboratory uses. The gear ratio of 20 to 1 gives approx. 90 RPM with a 1750 RPM motor—direct drive. Can be belt driven—any desired speed with any size motor up to 1/2 HP. Has a cast aluminum alloy case and BALL BEARINGS throughout. Heavy duty, double reduction spur gear drive. Will operate conveyors, timing devices, machine tool drives. Cost Gov't \$86.

**995**

### 10 POWER NAVY SPYGLASS

Here's a real optical bargain. Manufactured by Wollensak for the U.S. Navy Bureau of Ships. A 10 Power Officer or Deck Spyglass. Has top quality, fully coated, precision ground lenses. Adjustable eyepiece. Overall lgh. is 22-3/4". Complete in handsome hardwood case with brass hinges and locks. Used but excellent—

**2275**  
**2995**

SPYGLASS—Same as above but ALL NEW....

### SELSYN TRANSMITTER MOTOR

A Synchronous Type AC motor. Made originally for Army fire control units. A precision motor for the experimenter, etc. Will operate with speed variation for an indefinite time. 115 Volt, 60 cycle AC.

**\$4.95**

### 12 PIECE SPORTS KNIFE

IDEAL GIFT FOR SPORTSMEN, ETC.

**NEW IMPORT**

Eliminates 12 ITEMS from PACK or TOOL KIT! Contains a regular knife, fork, spoon, fish scaler & bone saw, aciculator, draw knife, can & bottle opener, corkscrew, owl punch, metal file. All mounted in a rugged 4-5/8" bone covered handle. Complete with handsome, genuine leather belt holster. BUY DIRECT FROM IMPORTER

**1295 VAL. 395**

### NYLON AUTO SAFETY BELTS

MADE TO WITHSTAND A CRASH PRESSURE OF 3000 POUNDS

Meets Civil Aeronautics Standards. Approved by Police, Safety Councils, Highway Patrol, Fleet Operators, etc. Made of finest NYLON webbing and fitted with Aircraft type buckles. Easily installed in any car. Special sizes for Sports Cars. Available in the following colors: Blue, Green, Gray and Maroon.

**995 VAL. 489**

### 6 POWER NAVY SCOPE

A remarkable Navy Surplus Bargain. Originally designed as an Azimuth Telescope which mounted above the Gyro Compass. Has approx. 6 POWER. Finest Quality fully coated lenses, crosshair reticle. Adjustable eyepiece. A Sun filter and a Haze filter. New cond. Cost Gov't \$150.00

**2495**

### 4 SPEED BARBECUE and HOBBY MOTOR

A rugged, precision built electric motor—uses 110 Volt, 60 cycle current. Originally built for the Navy—NOW converted for YOU! Has four take-off shafts for different speeds of 5, 25, 150 and 4000 RPM. A \$35.00 Value

**895**

### FREE! BARGAIN BOOKLET

Packed with more Amazing Palley Bargains in Government Surplus and New Merchandise. Includes Optical Goods, Camping & Hiking Equip., etc. Write for booklet No. CB.

### NEW ARMY SURPLUS 178mm f:2.5 CAMERA LENS

Originally designed for use on the K-21 and K-24 Aerial Cameras. A genuine EASTMAN AERO EKTAR 178mm lens. Has speeds from f:2.5 to f:16. Focal length is 7 inches. This amazing lens is NEW—in original con. Guaranteed perfect condition. Excellent for Color or Black and White. Exceptionally fine for night work or in poor light conditions. Comes with 2 filters—1 Polarized (for haze) and 1 yellow, plus a filter adapter, a lens heater for high altitudes and a lens dust cap. Can be adapted to 35 mm or Speed Graphic Cameras as a Telephoto lens (see below).

**ONLY 6950**

**35 MM ADAPTERS FOR ABOVE LENS—**  
Complete—no other parts to buy. Will focus from 8 ft. to infinity—setting marked on the mount.  
LEICA—CONTAX \$40—EXACTA—... **8950**  
CONTAX 2A... \$109.50 HASSALBAD... \$139.50

**ORDER FROM THIS AD—Pay by Money Order or Check. P.O.s accepted from well rated D&B firms. 1/2 discount with all C.O.D.s. Prices are F.O.B. our warehouse in Los Angeles, California.**

# • New Machines and Gadgets •

For sources of more information on new things described, send a self-addressed stamped envelope to SCIENCE SERVICE, 1719 N St., N.W., Washington 6, D. C., and ask for Gadget Bulletin 844. To receive this Gadget Bulletin without special request each week, remit \$1.50 for one year's subscription.

• **BETTER MOUSETRAP** is self-setting. A British invention, the mousetrap is triggered by the rodent's gnawing action. As described, it can be set in the dark without trapping the setter's finger. Made of steel, the trap can be washed and does not retain odors.

Science News Letter, August 18, 1956

• **MIXING BOWLS** made of aluminum are designed for use with portable hand mixers. The bowls have pouring spouts on both sides and plastic handles. Available in two sizes, the larger bowl is 5½ inches high, and its smaller companion is 4½ inches high.

Science News Letter, August 18, 1956

• **POCKET SCISSORS** made of nickel-plated instrument steel measure 4½ inches. A German import, the scissors can substitute for a screwdriver, wire cutter, ruler, hammer, glass cutter, rod or pipe wrench and other tools. It can be carried in purse or pocket.

Science News Letter, August 18, 1956

• **SCOURING PAD**, shown in the photograph, to help the busy housewife consists of a block of soft foam rubber with a carborundum grit firmly adhered to the bottom side. Usable with any detergent, cleaner, or soap and water, the pad can be



used to scour pots and pans and, after a few days, bathtubs and enamelware.

Science News Letter, August 18, 1956

• **CAR SCREEN** lets air in, but keeps insects out. Put on or removed when desired, the screen is designed to fit all cars with a vent post, except hardtop convert-

ibles. Made of a non-rusting, non-metallic material, the screen requires no screws, nails or hooks for installation.

Science News Letter, August 18, 1956

• **EXTENSION DUCT** for electrical outlet needed in the middle of the room is made of rubber. Stumble-proof so that office furniture can be rolled over it, the duct is 2¼ inches wide at the base, rising from a feather edge to an apex of 7/16 inch. Ribs on its underside prevent slipping.

Science News Letter, August 18, 1956

• **DOLL CARRIAGE** has a body that lifts out to convert it into a doll swing or car seat. The triple-play carriage is made with a collapsible frame of steel with axles welded to the frame. The toy also has a removable shopping bag and a detachable canopy.

Science News Letter, August 18, 1956

• **PROFILE DRAWINGS** of screws, screw heads and screw threads can be done quickly with a broad-range template kit. Containing four templates, the kit has one for small machine screws, one for screw threads, one for screw heads and a general dimensioner. All four templates have jet black, needle sharp centering guides.

Science News Letter, August 18, 1956



## Nature Ramblings



By HORACE LOFTIN

► **ARISING** before dawn and driving scores of miles in search of a bit of wilderness, today's week-end woodsman is often frustrated by an ever present "No Trespassing" sign.

These warning signs may make him sigh for the good old days when no such barriers were up. But when were there such "good old days?"

Ever since two or more animals lived in competition with one another, there have been "No Trespassing" signs erected to warn invaders off. Today's signs are in big, black, printed letters. The older signs are snarls and growls, bird songs, sudden charges.

Even signposts are set up in nature to let creatures know they are invading private territory.

"Signpost" behavior can be seen among some of the deer. The Roosevelt elk of the American Northwest have very definite signposts to mark their territory, and the

### No Trespassing



outsider who ignores the sign must be ready to fight to stay in the reserved area.

Female Roosevelt elk follow a highly ritualized pattern in laying out their "No Trespassing" signs. First, an appropriate sapling or limb is selected for "nosing,"—careful drawing of the nose up and down along the wood for a half dozen times. Then the post is scraped by drawing the front teeth over the "nosed" area in delib-

erate strokes. The shavings fall to the ground, where they may accumulate in quantity. The final flourish is made to the elk's "No Trespassing" sign when she carefully rubs the sides of her muzzle and chin on the shaved post.

The male elk erect such "signposts" generally only in the breeding season. The procedure is similar to that of the females, except that antlers are used for scraping instead of teeth and scraping comes before "nosing."

When a strange male enters the territory of another male in breeding season, the resident elk may "challenge" the newcomer by slashing and whipping shrubs and saplings with his antlers. This has been thought to be a direct challenge to fight.

More recently, some scientists have suggested that this slashing of shrubs is primarily signpost behavior—a warning, not a challenge. In effect, the resident bull elk is pointing to his sign—"Stay off: No Trespassing."

Science News Letter, August 18, 1956